L 2032-65   EWT(d)   Po-4/Pq-4/Pg-4/Pk-4/Pl-4   IJP(c)/AFMD(c)/AEDC(a)/ASD(d)/
AFETR/ASD(a)-5/ESD(dp)/ESD(rs)   BC

ACCESSION NR: AP4023975   S/0280/64/000/002/0056/0064

AUTHOR: Rakhimov, G. G. (Moscow)

TITLE: Analog of Lur'ye   method for analyzing the stability of nonlinear
sampled-data automatic-control systems

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1964, 56-64

TOPIC TAGS: automatic control, sampled data automatic control, nonlinear
sampled data automatic control. Lur'ye   method, automatic control system
stability

ABSTRACT: A theoretical investigation is presented of the absolute stability of
sampled-data systems which have a nonlinear characteristic located in a sector
bounded by the x-axis and a straight line passing through the origin of coordinates
in the first and third quadrants. Canonic equations describing sampled-data non-
linear systems are set up. Asymptotic stability "in the large" of the systems

Card 1/2

L 2083-65
ACCESSION NR: AP4028975

with (a) simple nonzero poles of the linear part and (b) one zero pole of the
linear part is examined; stability criteria are formulated. An example illustrates
the method. "The author is sincerely thankful to Ya. Z. Tsy*pkin for the problem
statement and help in carrying out the above task." Orig. art. has: 4 figures and
18 formulas.

ASSOCIATION: none

SUBMITTED: 10Jul63

SUB CODE: DP, IE   NO REF SOV: 008

ENCL: 00

OTHER: 003

Card 2/2

L 44348-65   EWT(d)   Pg-4   IJP(c)

ACCESSION NR: AP5010124

UR/0167/65/000/001/0016/0019

AUTHOR: Rakhimov, G. G.

TITLE: Conditions for satisfying an analog of Leray's theorem on stability of nonlinear impulse systems

SOURCE: AN UzSSR. Izvestiya. Seriya tekhnicheskikh nauk, no. 1, 1965, 16-19

TOPIC TAGS: differential equation, stability

ABSTRACT: The author finds a sufficient condition for the existance of a set of solutions of a system of equations derived in a previous paper (Analog metoda Lur'ye dlya analiza ustoychivosti nelineynykh impul'snykh sistem avtomaticheskogo regulirovaniya, "Izv. AN SSSR," tekhnicheskaya kibernetika, 1964, No. 2) as a condition for absolute stability of a system of automatic regulation with characteristic nonlinear element belonging to the sector 0 - kx, and with simple poles in the linear part. Three applications of the result are given. Orig. art. has: 9 formulas.

ASSOCIATION: Uzbekskiy nauchno-issledovatel'skiy institut energetiki i avtomatiki (Uzbekistan Scientific Research Institute for Power and Automation)

Card 1/2

L 44348-65

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ACCESSION NR:  AP5010124

SUBMITTED:  17Aug64                ENCL:  00                    SUB CODE:  MA

NO REF SOV:  002                   OTHER:  001
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Card 2/2

ACC NR: AT6020236   (N)   SOURCE CODE: UR/2569/65/000/077/0067/0071

AUTHORS: Yolkin, G. A.; Rakhimov, G. G.

ORG: none

TITLE: Reproducibility of the frequency of a molecular generator on the ammonia transition line

SOURCE: USSR. Komitet standartov, mer i izmeritel'nykh priborov. Trudy institutov Komiteta, no. 77(137), 1965. Issledovaniya v oblasti izmereniya vremeni i chastoty (Research in the field of time and frequency measurement), 67-71

TOPIC TAGS: molecular generator, crystal oscillator, klystron, electron tube, frequency characteristic, mean square error

ABSTRACT: The possibility of using a molecular generator with an ammonia $N^{14}H_3$ emission line in the time and frequency service is examined. The work was done at VNIIFTRI to check the frequency of the standard 100-kHz quartz-crystal oscillators. The voltage from the quartz-crystal oscillator is fed to a frequency multiplier (see Fig. 1), where it is multiplied by 2560 and by 31. The frequencies of the oscillators are connected by the relation

$$ f_1 = \frac{f_2 - F}{23\,870}. $$

where f_1 is the frequency of the quartz-crystal oscillator; f_2 the frequency of the

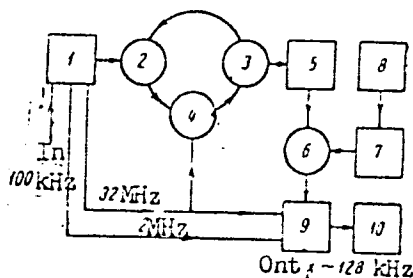Card 1/2   UDC: 539.194:546.171.1:529.70:

ACC NR: AT6020236

Fig. 1. Molecular generator: 1 - frequency multiplier X 79360; 2 - mixer; 3 - klystron ($f \sim$ 7968 MHz); 4 - if amp and phase detector; 5 - frequency multiplier X 3; 6 - mixer; 7 - molecular generator ($f \sim$ 23870.128 MHz); 8 - tuning unit; 9 - if amp and frequency converter; 10 - electronic frequency meter

molecular generator; and F the difference frequency. Reproduction of the frequency of the molecular generator by tuning the resonator by magnetic broadening of the transition line eliminates thermal drift of the resonator frequency. Frequency characteristics are given. The rms error of the measurement method is about $2 \cdot 10^{-10}$. Orig. art. has: 3 formulas, 1 diagram, 5 graphs, and 4 tables.

SUB CODE: 09/   SUBM DATE: —Feb62/   ORIG REF: 001/   OTH REF: 002

Card 2/2

ACC NR: AP6031012

SOURCE CODE: UR/0167/66/000/004/0008/0015

AUTHOR: Rakhimov, G. G.

ORG: Institute of Automation and Telemechanics, AN SSSR (Institut avtomatiki i telemekha-niki AN SSSR)

TITLE: Absolute stability of a class of nonlinear pulsed automatic systems

SOURCE: AN UzSSR. Izvestiya. Seriya tekhnicheskikh nauk, no. 4, 1966, 8-15

TOPIC TAGS: nonlinear automatic control system, pulse modulation, pulse amplitude modulation, mathematic matrix

ABSTRACT: This class of pulsed systems is such (Fig. 1) that the system error signal arrives at the input of the pulsed element (PE) which performs amplitude control. Connected to the output of PE are i components with nonlinear characteristics f_i (σ). Generally these characteristics do not coincide, but they all belong in the same class. The linear part of every parallel branch of the system is a stable aperiodic or integrating component. Systems with a single nonlinearity and amplitude modulation of pulses as well as systems with pulse-width control may be regarded as particular instances of such a system. It is shown with
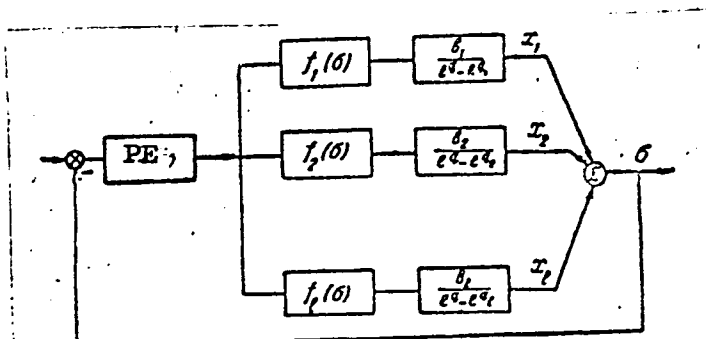
Card 1/2

ACC NR: AP6031012

Fig. 1.

the aid of Lyapunov's function that the system is absolutely stable if its nonsingular matrix representation satisfies the Sylvester criterion; to this end, the elements of the matrix on the leading diagonal must be positive. Orig. art. has: 2 figures, 34 formulas.

SUB CODE: 09, 12   / SUBM DATE: 10Mar66/ ORIG REF: 004/ OTH REF: 003

Card   2/2

KUCHKAROV, G. K.

"A Symbolic Method of Calculating Electric Circuits with Nonsinusoidal Quantities," Transactions of the Power Engineering Institute" (Trudy instituta energetiki), No 3, Power Engineering Institute, AS Uzbek SSR, 1949, 143 pp.

RAKHIMOV, G. R.

USSR/Electricity - Personalities

Jan 52

"Professor N. N. Shchedrin (His 60th Birthday and 30 Years of Scientific and Pedagogical Activity)," A. A. Gorev, V. A. Tolvinskiy, M. A. Shatelen, R. A. Alimov, N. I. Toperverkh, Kh. F. Fazylov, G. R. Rakhimov, M. Ye. Syrkin, B. I. Shabadash

"Elektrichestvo" No 1, p 92

Shchedrin has published more than 30 scientific works, most of them devoted to the calcn of short-circuit currents. Recently, he has concd on dc power transmission and has directed studies on long-distance power transmission by dc and ac at the Power Eng Inst, Acad Sci Uzbek SSR. Shchedrin is a member of the Permanent Commission on Short-Circuit Currents, Min of Elec Power Stations, the Commission on Long-Distance Power Transmission, Dept of Tech Sci, Acad Sci USSR, and of the Sci Council of the Sci Res Inst of DC.

201T16

_____, ____, _____ ____; _____, ____.; _____, ____., ____;
___ ____, _ __., ____.

Lomonosov, V. Yu.

Discussion of V. Yu. Lomonosov's article "Operational Calculus and Training in
Electrical Engineering." Elektrichestvo Nr. 2, 19__.

Monthly List of Russian Accessions, Library of Congress, December 19__. Unclassified.

METELKIN, A.F.; KARPOVA, K.A., inzhener; LUR'YE, L.S., kandidat tekhnicheskikh
nauk; RAKHIMOV, G.R., dotsent, kandidat tekhnicheskikh nauk; KYAZIM-ZADE,
Z.I., dotsent, kandidat tekhnicheskikh nauk.

Remarks on the textbook on theoretical electric engineering for higher
schools. Elektrichestvo no.12:70-72 D '53.   (MLRA 6:11)

1. Ivanovskiy energeticheskiy institut im. Lenina (for Metelkin and Karpova).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrifikatsii sel'skogo
khozyaystva (for Lur'ye). 3. Sredneaziatskiy politekhnicheskiy institut (for
Rakhimov). 4. Azerbaydzhanskiy industrial'nyy institut im. Azizbekova (for
Kyazim-Zade).   (Electric engineering--Textbooks)

TAREYEV, B.M., professor, doktor tekhnicheskikh nauk; GIKIS, A.F.,
dotsent, kandidat tekhnicheskikh nauk; MEZHLUMOV, A.A., dotsent,
kandidat tekhnicheskikh nauk (Baku); STOLOV, L.I., dotsent,
kandidat tekhnicheskikh nauk (Kazan'); YUMATOV, A.A., inzhener
(Kronshtadt); RAKHIMOV, G.R., dotsent, kandidat tekhnicheskikh
nauk; KONSTANTINOV, V.I., inzhener (Moscow); NEYMAN, L.R.;
ZAYTSEV, I.A., dotsent, kandidat tekhnicheskikh nauk; LUR'YE, A.G.,
dotsent, kandidat tekhnicheskikh nauk.

Terminology of theoretical electrical engineering. Elektrichestvo
no.2:74-82 F '54.   (MLRA 7:2)

1. Vsesoyuznyy zaochnyy energeticheskiy institut (for Tareyev).
2. Rostovskiy institut inzhenerov zheleznodorozhnogo transporta
(for Gikis). 3. Sredneaziatskiy politekhnicheskiy institut (for
Rakhimov). 4. Chlen-korrespondent Akademii nauk SSSR (for Neyman).
5. Leningradskiy politekhnicheskiy institut im. Kalinina (for
Neyman, Zaytsev, Lur'ye).   (Electric engineering--Terminology)

КНAЛИЛИ, Т. К.

AID P - 1038

Subject   : USSR/Electricity

Card 1/1   Pub. 27 - 15/23

Authors   : Neyman, L. R., Prof., Corr. Memb. of Acad. of Sci. of the
                  USSR and Rakhimov, G. R., Kand. of Tech. Sci., Leningrad

Title   : J. C. Maxwell (75th anniversary of his death)

Periodical   : Elektrichestvo, 11, 81-87, N 1954

Abstract   : The authors give a historical review of Maxwell's theories
                  and works. One photograph, 10 references (1 Russian) (1873-
                  1954).

Institution   : Leningrad Polytechnical Institute im. Kalinin, Chair of
                  Theoretical Elements of Electrical Engineering

Submitted   : No date

NEYMAN, L.R., professor; RAKHIMOV, G.R., kandidat tekhnicheskikh nauk; YANKO-TRINITSKIY, A.A., kandidat tekhnicheskikh nauk.

The 125th anniversary of Faraday's law of electromagnetic induction. Electrichestvo no.8:80-82 Ag '56.   (MLRA 9:10)

1.Chlen-korrespondent AN SSSR (for Neyman)
(Faraday, Michael, 1791-1867)

MARTIN, G. R.

N/5
613.634
.R2

Ferrorezonans; avtoparametricheskoye vozbuzhdeniye elektroferromagnitnykh tsepey Ferro-resonance Tashkent, Izd-vo AN UzSSR, 1957.

143 p. Diagrs., tables.
At head of title-page: Akademiya Nauk Uzbekskcy SSR. Institut Energeti-ki.

Bibliography: p. 135-143.

RAKHIMOV, G.R.; MELODIYEV, L.S., otvetstvennyy red.; ROMANIKA, N.A., red.
    izd-va; GOR'KOVAYA, Z.P., tekhn.red.

[Ferroresonance; autoparametric oscillators of electroferomagnetic
circuits] Ferrorezonans; avtoparametricheskoe vozbuzhdenie elektro-
ferromagnitnykh tsepei. Tashkent, Izd-vo Akad. nauk Uzbekskoi SSR,
1957. 142 p.   (MIRA 11:4)
        (Electric circuits)

SOV/112-58-1-58

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 1, p 5 (USSR)

AUTHOR: Rakhimov

TITLE: Resonant Curves of Lower Harmonic Oscillations in Electroferromagnetic Circuits (Rezonansnyye krivyye nizshikh garmonicheskikh kolebaniy v elektroferromagnitnykh tsepyakh)

PERIODICAL: Dokl. AN UzSSR, 1957, Nr 3, pp 21-23

ABSTRACT: Resonant curves are considered in a series ferroresonant circuit for 2nd, 3rd, and 5th subharmonics. A "resonant curve" is an amplitude of the corresponding subharmonic oscillations plotted against a circuit parameter (capacitance or frequency). Minimum and maximum values of each parameter exist, between which appearance of a corresponding subharmonic is possible. The higher the subharmonic order, the lower its resonant curve lies. Resonant curves have a rising pattern. The oscillations stop at the maximum current of a subharmonic. With a constant supply voltage and a variation in source frequency, the frequency of a subharmonic varies continuously according to the

Card 1/2

SOV/112-58-1-58

Resonant Curves of Lower Harmonic Oscillations in Electroferromagnetic Circuits

source frequency. Also presented are voltage across the capacitor and voltage across a nonlinear inductance (subharmonic components) plotted against the capacitance of the circuits. Bibliography: 3 items.

L.A.B.

AVAILABLE: Library of Congress

1. Electromagnetic fields--Circuits   2. Electrical circuits --Oscillation   3. Oscillations--Analysis

Card 2/2

PHASE I BOOK EXPLOITATION   867

Rakhimov, G. R.

Ferrorezonans; (avtoparametricheskoye vozbuzhdeniye elektroferromagnitnykh
    tsepey) (Ferroresonance; Autoparametric Excitation of Electroferro-
    magnetic Circuits) Tashkent, Izd-vo AN Uzbekskoy SSR, 1957. 142 p.
    750 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR. Institut energetiki

    Resp. Ed.: Melodiyev, L.S.; Ed. of Publishing House: Romanika, N.A.;
    Tech. Ed.: Gor'kovaya, Z.P.

PURPOSE: The book is intended for electrical engineers, technicians,
    scientists and students of vuzes.

COVERAGE: The author investigates the special features of oscillatory phe-
    nomena occurring in electric circuits with ferromagnetic components.
    Special attention is devoted to the experimental investigation and
    physical explanation of ferroresonance phenomena, lower harmonics
    (subharmonics), and complex oscillations. The book supplies general formulae
    for subharmonic oscillations.
Card 1/5

Ferroresonance; Autoparametric Excitation (Cont.)   867

According to the author, the book is an attempt to create a unified
physical presentation of phenomena in electroferromagnetic oscillatory
circuits chiefly on the basis of experimental investigations. In con-
nection with this primary aim, the clarification of quantitative
relationships and the derivation of formulae were only side problems
in the work. General quantitative relationships of processes in these
circuits are difficult to establish until sufficient data on certain
phenomena are compiled. Therefore, investigations of autoparametric
oscillations were conducted on simple three-phase electroferromagnetic
oscillatory circuits and on electric circuits with ferromagnetic coupling.
The author thanks Professor L.R. Neyman, Corresponding Member AS USSR,
Doctor of Technical Sciences, and I.A. Zaytsev and L.S. Melodiyev, Candi-
dates of Technical Sciences, for their valuable help and advice. There
are 186 references, of which 104 are Soviet (including 6 translations),
40 English, 27 German, 14 French and 1 Czech.

TABLE OF CONTENTS:

Card 2/5

Ferroresonance; Autoparametric Excitation (Cont.)   867

Card 3/5

Ferroresonance; Autoparametric Excitation (Cont.)   867

Card 4/5

Ferroresonance; Autoparametric Excitation (Cont.) 867

AVAILABLE: Library of Congress (TK3226.R3)

JP/aak
11-25-58

Card 5/5

RAKHIMOV, G. R.

"Low harmonics and combinatorial oscillations in the three-phase
nonlinear systems with ferromagnetic elements."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR,
9-19 Sep 61

Central Asian Polytechnical Institute, Tashkent, USSR

RAKHIMOV, G. R.

"Auto-oscillations in electric circuits with ferromagnetic coupling."

report submitted for Intl Conf on Microwaves Circuit Theory & Information Theory, Tokyo, 7-11 Sep 64.

Address in program: Yakul Kolos St 16, Tashkent. [Address of Tashkent Polytechnical Inst is Yakuba Kolasa 16, Tashkent]

L 17428-66   EWT(1)   IJP(c)   GG
ACCESSION NR: AR5018679   SOURCE CODE: UR/0196/65/000/007/A010/A011

AUTHOR: Rakhimov, G.R.; Sharipov, Kh.   *5 4*

ORG: none   *B*

TITLE: Autoparametric oscillations in two-contour electroferromagnetic circuits

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 7A85

REF SOURCE: Sb. dokl. Tashkentsk. politekhn. in-t, no. 6, 1964, 155-171

TOPIC TAGS: ferroelectricity, electromagnetism, magnetic circuit, non linear
system   2/, 44, 5 5

TRANSLATION: The results are given of an experimental study of four possible
types of two-contour electroferromagnetic circuits with a nonlinear inductive ca-
pacity and with either 2 additional condensators, or with a coil and a condensator
with loop-type volt-amper characteristics. A study was made of the effect of the
voltage-supply volume, the damping of the circuit, and its charge and capacity on
generating and keeping lower harmonic oscillations with frequencies equal to one

Card 1/2   UDC: 621.372.061

L 17428-66
ACCESSION NR: AR5018679 O

third of the voltage-supply frequency. Though these oscillations are generated
and exist at certain definite voltage-supply volumes, beyond which there occurs a
stopping, their amplitudes remains almost permanent during voltage-supply varia-
tions. Damping and charge bear on the size of the oscillations area, but they
hardly affect their amplitude. The lowest harmonic oscillations are generated at
a higher-than-critical capacity, and their amplitudes increase with increasing
capacities. They are superposed on the oscillations with voltage-supply frequen-
cies whose amplitudes are proportional to the applied voltage. References 5.
See also RZhE, 1965, 6A29. B. Zhukhovitskiy.

SUB CODE: 09

Card 2/2   nst

L 19505-65   ASD(f)-3/AFTC(p)
ACCESSION NR: AP4048321   S/0145/64/000/008/0042/0048

AUTHOR: Rakhimov, I. S. (Engineer)

TITLE: Effect of axial forces and normal pressure on the free oscillations of cylindrical shells

SOURCE: IVUZ. Mashinostroyeniye, no. 8, 1964, 42-48

TOPIC TAGS: shell, shell design, cylindrical shell, shell oscillation

ABSTRACT: Due to the wide use of smooth and reinforced cylindrical shells in different fields of engineering, besides the problems of stability and strength, the problem of the dynamic design of these structures is beginning to become very important. This includes determination of the frequency of free oscillation of the structures. The present paper considers the effect of axial forces and normal pressure on the free oscillations of ortho-tropic circular cylindrical shells under any limiting conditions. Prof. S. N. Kan's method of shell design has been used on the basis of the theory of elastic thin-walled shells. Using radial, tangential and longitudinal deflections, an equation is evolved for finding the stres-ses, deformation and inertia of separate members of the structure. The loss of stability is determined, and the equation also considers uniform internal pressure. A comparison of these equations (previously published and derived) shows that the results coincide with

Card   1/2

L 19505-65
ACCESSION NR: AP4048321

methods described in papers by V. Ye. Breslavskiy and M. V. Nikulin. Frequencies differ by only 1% which is allowable. This proves that the method proposed by Prof. S. N. Kan is sufficiently accurate for solving problems not only on strength and stability but also on the oscillations of cylindrical shells. Orig. art. has: 20 equations and 1 table.

ASSOCIATION: Khar'kovskoye vy*ssheye komandno-inzhenernoye uchilishche (Khar'kov Advanced Engineering Officer's School)

SUBMITTED: 19Jul63   ENCL: 00   SUB CODE: AS, ME

NO REF SOV: 004   OTHER: 000

Card   2/2

RAKHIMOV, I.S., inzh.

Effect of axial stresses and normal pressure on natural vibrations of cylindrical shells. Izv. vys. ucheb. zav.; mashinostr. no.8:42-48 '64. (MIRA 17:11)

1. Khar'kovskoye vyssheye komandno-inzhenernoye uchilishche.

L 9085-65   EWT(m)/EWA(d)/EWP(k)/EWA(h)   Pf-4/Peb   ASD(f)/AFTC(p)

ACCESSION NR: AP4043422   S/0147/64/000/003/0075/0078

AUTHOR: Natushkin, V.F., Rakhimov, I.S.   B

TITLE: Vibration of a cylindrical shell partly filled with liquid

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1964, 75-78

TOPIC TAGS: shell, cylindrical shell, shell vibration, liquid filled shell, circular cylindrical shell, liquid filled shell vibration

ABSTRACT: The authors consider the influence of a liquid in a circular cylindrical shell on the natural frequencies of its vibration under arbitrary boundary conditions. They show that in engineering analysis of this problem, the factor of the reduced mass of the liquid plays an important role. The vibrational behavior of a circular cylindrical shell in vertical position is examined. The differential equation of equilibrium of an element of a liquid-containing shell is used as the starting point and the effects of tangential and rotational inertia are neglected. It is assumed that the motion of the liquid is potential and isentropic. The effect of the amount of liquid in the shell is discussed and a simple practical formula is derived for the natural frequencies of vibration of a shell partly or completely filled with liquid. Orig. art. has: 23 formulas.

Card 1/2

L 9085-65

ACCESSION NR: AP4043422

ASSOCIATION: none

SUBMITTED: 20Jul63   ENCL: 00   SUB CODE: AS

NO REF SOV: 003   OTHER: 000

Card 2/2

YUNUSOV. A.Yu.; RAKHIMOV, K.; SAFAROVA, S.N.

Amylolytic activity of the pancreas, liver and intestine under
the conditions of high temperature and insolation. Uzb. biol.
zhur. 9 no.4:35-38 '65.

(MIRA 18:10)

1. Institut krayevoy meditsiny AMN SSSR.

YAKUBOV, A.Yu.; RAKHIMOV, K.; YAKUSH, A.N.

Some data on perivisceral and parietal digestion in the sheep
intestines. Uzb. biol. zhur. 9 no.5:32-35 '65.
(MIRA 18:10)

1. Uzbekskiy institut krayevoy meditsiny AMN SSSR i Uzbekskiy
nauchno-issledovatel'skiy institut zhivotnovodstva.

... ., ..., . .

... ... chronic experiments.
... ., ...

(MIRA 18:10)

1. ... ... Institute ... ...
... ...

RAKHIMOV,K.

Exocrine functions of the pancreas in dogs at high tempera-
ture. Trudy Inst. kraev. eksper.med. no.4:49-54'62.
(MIRA 16:6)

(PANCREAS—SECRETIONS) (HEAT—PHYSIOLOGICAL EFFECT)

RAKHIMOV, K.

20872. Rakhimov, K. K novomu pos"emu khlopkovodstum v Uzbekistane. Sots. sel. khoz-vo Uzbekistana, 1949, No. 1, s. 3-9.

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949.

LAKHIDOV, K.

Adaptability of the pancreas to the quality of food under the effect of high temperature and insolation. Biul. eksp. biol. i med. 60 no.11:30-33 N '65.   (MIRA 19:1)

1. Otdel fiziologii (zav. - akademik AN Uzbekskoy SSR prof. A.Yu. Yurusov) Uzbekskogo instituta krayevoy meditsiny (direktor - prof. G.M. Makhkamov) AMI SSSR, Tashkent, i Laboratoriya fiziologii pitaniya (zav. - doktor med. nauk A.M. Ugolev) Instituta fiziologii imeni I.P. Pavlova (direktor - akademik V.N. Chernigovskiy) AN SSSR, Leningrad. Submitted June 4, 1964.

RAKHIMOV, K.

Study of inborn and natural conditioned food reflexes in the ontogeny
of ruminants. Opyt izuch.reg.fiziol.funk. 4:124-133 '58.

(MIRA 12:4)

1. Laboratoriya ekologicheskoy fiziologii (zaveduyushchiy - prof. A.D.
Slonim) Instituta fiziologii imeni I.P. Pavlova AN SSSR.
(RUMINANTIA)
(REFLEXES)

RAKHIMOV, K.: Master Biol Sci (diss) -- "The formation of food reflexes in the postnatal ontogeny of ruminants". Leningrad, 1959. 21 pp (Acad Sci USSR, Inst of Physiology im I. P. Pavlov), 150 copies (KL, No 16, 1959, 107)

ACC NR: AP7011840   SOURCE CODE: UR/0425/66/009/010/0009/0013

AUTHOR: Rakhimov, Kh. Kh.

ORG: Physics-Engineering Institute im. S. U. Umarov, AN TadzhSSR (Fiziko-tekhnicheskiy institut AN TadzhSSR)

TITLE: Extrusion of a viscous material through a circular opening in one of two unbounded, parallel walls

SOURCE: AN TadzhSSR. Doklady, v. 9, no. 10, 1966, 9-13

TOPIC TAGS: viscous flow, axisymmetric flow, incompressible fluid

SUB CODE: 20

ABSTRACT: The author studies the problem of the axisymmetrical flow of a viscous material between two unbounded horizontal walls and through an opening in the lower wall, for small ratios of the radii of the openings to the distances between the walls. It is assumed that: (1) the flow is smooth $\frac{\partial}{\partial t} = 0$;

(2) axisymmetrical $v_\varphi = 0, \quad \frac{\partial v_r}{\partial \varphi} = 0, \quad \frac{\partial v_z}{\partial z} = 0;$ and (3) slow and that —

(4) the liquid is incompressible and the coefficient of viscosity is constant. The solution is accomplished by means of an integral transform of Hankel, — which leads to improper integrals for the expressions for the components of

Card 1/2   C232   D 440

ACC NR: AP7011840

velocity, pressure, and stress. With some modifications these are put
in series form which can be solved. This article was presented by cor-
responding Member AN TadzhSSR A. Adkhamov on 15 March 1966. The author
thanks N. A. Slezkin for directing the work and helping to prepare the
article for publication. Orig. art. has: 12 formulas. /JPRS: 40,393/

Card 2/2

ACC NR: AP5023989   SOURCE CODE: UR/0055/65/000/005/0085/0091

AUTHOR: Rakhimov, Kh. Kh.

ORG: Department of Hydrodynamics, Moscow University (Kafedra gidrodinamiki, Moskovskiy universitet)

TITLE: Some cases of the reduction of the system of equations of a gas to ordinary equations

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no. 5, 1965, 85-91

TOPIC TAGS: fluid flow, gas viscosity, fluid viscosity, equation of state

ABSTRACT: The article considers the unsteady state straight line parallel flow of a viscous fluid with variable viscosity, without taking mass forces into account. In addition, it is assumed that all the flow characteristics do not depend on the coordinate z. Under these assumptions, the well known equations of motion of a viscous compressible fluid have the following form:

Card 1/2   UDC: 532.5

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ACC NR: AP5023989

$$\rho\left(\frac{\partial u}{\partial t}+u\,\frac{\partial u}{\partial x}\right)=-\frac{\partial p}{\partial x}+\frac{\partial}{\partial x}\left[\left(\lambda'+\frac{4}{3}\,\mu\right)\frac{\partial u}{\partial x}\right]+\frac{\partial}{\partial y}\left(\mu\,\frac{\partial u}{\partial y}\right),$$

$$0=-\frac{\partial p}{\partial y}+\frac{\partial}{\partial x}\left(\mu\,\frac{\partial u}{\partial y}\right),$$

$$\frac{\partial p}{\partial t}+\frac{\partial}{\partial x}\,(\rho u)=0,$$

$$\frac{\rho}{A}\left(\frac{\partial e}{\partial t}+u\,\frac{\partial e}{\partial x}\right)=-p\,\frac{\partial u}{\partial x}+\left(\lambda'+\frac{4}{3}\,\mu\right)\left(\frac{\partial u}{\partial x}\right)^{2}+\mu\left(\frac{\partial u}{\partial y}\right)^{2}+$$

$$+\frac{1}{A}\left[\frac{\partial}{\partial x}\left(\varkappa\,\frac{\partial T}{\partial x}\right)+\frac{\partial}{\partial y}\left(\varkappa\,\frac{\partial T}{\partial y}\right)\right], \qquad (1)$$

where μ is the shear viscosity coefficient; λ' is the volumetric viscosity coefficient; $\mathcal{E}$ is the internal energy of a unit of mass; T is the absolute temperature; A is the thermal equivalent; $\varkappa$ is the thermal conductivity; p is the pressure; and, u is the unique velocity component parallel to the x axis. It is assumed that the internal energy, the viscosity, and the thermal conductivity depend only on temperature. With these special assumptions, it is demonstrated that the system of differential equations for the straight line parallel flow of a viscous fluid with variable viscosity can be reduced to ordinary differential equations. Orig. art. has: 24 formulas.

SUB CODE: ME/ SUBM DATE: 27Oct64/ ORIG REF: 004/ OTH REF: 001

Card 2/2

RAKHIMOV, Kh.R.; NYRKOVA, L.P.; INOYATOV, K.I.

Ternary complexes in the system metal ion - anabasine - salicylate
ion. Nauch.trudy TashGU no.257.Khim.nauki no.12:94-97 '64.
(MIRA 18:8)

BEREZOV, Yu.Ye.; POTEMKINA, Ye.V.; RAKHIMOV, R.S.

Angioplastic replacement of venous trunks. Eksper. khir. i anest. 9
no.1:18-22 Ja-F '64.   (MIRA 17:12)

1. Otdeleniye khirurgii sosudov (zav. - prof. Yu.Ye.Berezov) Instituta
serdechno-sosudistoy khirurgii (dir. - prof. S.A.Kolesnikov, nauchnyy
rukovoditel' - akademik A.N.Bakulev) AMN SSSR, Moskva.

GRINEVICH, G.A.; GARTSMAN, L.B.; RAKHIMOV, Kh.; PETELINA, N.A.;
        FAZYLOV, Kh.F., akademik, otv. red.; SHAFEYEVA, K.A.,
        red.; SOKOLOVA, A.A., red.; KARABAYEVA, Kh.U., tekhn.
        red.

[Study of the characteristics of regenerative power sources;
wind, water, and solar energy] Issledovaniia kharakteristik
rezhima vozobnovliaiushchikhsia istochnikov energii vody,
vetra i solntsa. Tashkent, 1963. 205 p.   (MIRA 16:8)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut energeti-
ki i avtomatiki. 2. AN UzSSR (for Fazylov).
                    (Power resources)

BARKHIMOV, Ku.K'.

... tion of an infinite wall in a viscous incompressible fluid with
slip. Vest. Mosk. un. Ser.1: Mat., mekh. 20 no.3:65-69 My-Je '65.
                                        (MIRA 18:9)

1. Kafedra gidrodinamiki Moskovskogo gosudarstvennogo universiteta
imeni M.V.Lomonosova.

RAKHIMOV, KH. R., DOC CHEM SCI, "TEXTBOOK ON PHYSICAL
AND COLLOIDAL CHEMISTRY FOR HIGHER EDUCATIONAL INSTITU-
TIONS." TASHKENT, 1961. (TASHKENT STATE UNIV IMENI V. I.
LENIN). (KL-DV, 11-61, 210).

-32-

√Distribution of aphillidine between water and organic solvents. Kh. R. Rakhimov and S. N. Nabikhodzhaev. *Doklady Akad. Nauk Uzbek. S.S.R.* 1953, No. 6, 32–7; *Referat. Zhur., Khim.* 1954, No. 10293.—The distribution coeff. C_1/C_2 between H_2O and a no. of org. solvents was studied. C_1 denotes concn. of aphillidine in mol./l. in H_2O and C_2 the same concn. in org. liquid. For the system H_2O-C_6H_6, where $C_1 + C_2 = 0.17$-0.75 mols., $C_1/C_2 = 0.011$; where $C_1 + C_2 = 1.01$, $C_1/C_2 = 0.020$. For the system H_2O-dichloroethane, where $C_1 + C_2$ is 0.14-0.47, $C_1/C_2 = 0.011$-0.010; at $C_1 + C_2 = 1.12$, $C_1/C_2 = 0.006$. For the system H_2O-ligroin, where $C_1 + C_2$ is 0.023, 0.039, and 0.081, C_1/C_2 is 0.23, 0.20, and 0.15, resp. For the system H_2O-ether where $C_1 + C_2$ is 0.006, 0.011, 0.044, 0.070, 0.107, 0.159, 0.230, and 0.242, the resp. values of C_1/C_2 are 0.20, 0.20, 0.18, 0.17, 0.15, 0.13, 0.14, and 0.11. For the system satd. aq. soln. of NaCl-C_6H_6, where $C_1 + C_2$ is 0.289, 0.651, 1.125, the corresponding values of C_1/C_2 are 0.0018, 0.0015, and 0.0023.   M. Hoseh.

RAKHIMOV, Kh.R.; FATKULINA, L.G.

Viscosity of the pyridine - water - carbon tetrachloride system.
Uzb.khim.zhur. no.6:29-33 '58.   (MIRA 12:2)

1. Sredneaziatskiy gosudarstvennyy universitet im. V.I.Lenina.
   (Pyridine)   (Carbon tetrachloride)   (Viscosity)

RAKHIMOV, KH. R

USSR

Distribution of anabasine between benzene and aqueous sodium sulfate solution. Kh. R. Rakhimov, I. S. Kulikov, and S. N. Nabikhodzhaev. *Doklady Akad. Nauk Uzbek. S.S.R.* 1953, No. 7, 18-21; *Referat. Zhur., Khim.* 1954, No. 4622.—The investigation concerned the possibility of better extn. of anabasine from an anabasine sulfate soln. in decompg. the latter with a NaOH soln. by increasing the concn. of Na₂SO₄ in the soln. The distribution coeff. of anabasine between C₆H₆ and 0.5.1, and 1.5 M Na₂SO₄ was detd. at 25°. From these data the solv. of anabasine in 1 M Na₂SO₄ was found to be 0.2 wt. % and in 1.5 M Na₂SO₄ 0.75 wt. %. Addn. of 1.5 mole per l. Na₂SO₄ to an alk. anabasine sulfate soln. caused 97% of the anabasine to sep. as a layer. One extn. with C₆H₆ yielded 99.95% of anabasine.   M. Hosch

RUSTAMOV, Kh.R.; RAKHIMOV, Kh.R.; AGZAMOV, K.A.

Effect of inorganic cations on the catalytic properties of
cationites. Uzb.khim.zhur. no.5:45-44 '58.   (MIRA 12:2)

1. Sredneaziatskiy politekhnicheskiy institut.
        (Cations)   (Base-exchanging compounds)

Abs Jour: Referal. Zh.- ..., No 2, 1950, 77..

Author: Kovnat, ..., ...ayeva, L. ., ...hir...L...

Inst:

Title: The ...tr... of the Larynx

Orig. Pub: Za ...tr., ...rvice ... zbekistana, 1955, No. 6, 43-47

Abstract: The ...st ...ngerous are carcinomas of the epiglottis, false
          chord... and of the laryngeal ventricle. ..he true vocal chords
          are ...or in ly...hatics; therefore, metastases appear later
          and develop ...re slowly. The false vocal chords are rich in
          ly...hatics and metastatic spread therefrom occurs early.
          Prognosis depends upon the location of the tumor; it is dif-
          ferent for cancer of the true vocal chords, the portion below
          the vocal chords, and the vestibule of the larynx. (f 100

Card   : 1/2

RAKHIMOV, M I.

    Eliminate shortcomings in processing telegrams. Vest. sviazi 23
    no.9:21 S '63.   (MIRA 16:10)

    1. Nachal'nik Kazanskogo telegrafa.

Rakhimov, M.K.

✓ Medieval glazes of Uzbekistan. P. I. BALABAN AND M. K. RAKHIMOV. Steklo i Keram., 12 [5] 18-20 (1955).—Historical. B.Z.K. (1)

RAKHIMOV, M. K.

USSR

2633. Medieval glazes of Uzbekistan.—P. I. BALABAN and M. K. RAKHIMOV (*Glass & Ceramics*, Moscow, 12, No. 5, 18, 1955). (3 pp., 2 tables.)

BALABAN,P.I.; RAKHIMOV,M.K.

Medieval glazes of Uzbekistan. Stek.i ker. 12 no.5:18-20
My '55.   (MIRA 8:8)
                    (Uzbekistan--Glazes)

RAKHIMOV, K. K.

"Marriage traditions among Electrichestric Ceramics Uzbekistan."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

RUDIN, M. -- "On the Rationalization of the Tooth-profile of a Fuzz-separating Saw of the Mechanical Process of Seed Shucking in a Cotton Cleaning Plant." Min Higher Education USSR, Tashkent Textile Institute, Tashkent, 1956. (Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No 43, October 1956, Moscow

RAKHIMOV, N.

      Linting and fluffing. Sbor. nauch.-issl. rab. TTI no.4:46-57 '57.

                                                     (MIRA 11:9)
           (Cotton gins and ginning)

RAKHIMOV, N., inzhener, aspirant.

Using thick saws for the removal of linters.   Tekst.prom. 17
no.6:19-21 Je '57.   (MIRA 10:7)

1. Tashkentskiy tekstil'nyy institut.
          (Linters)   (Cotton gins and ginning)

S/044/60/000/008/025/035
C111/C222

AUTHOR: Rakhimov, N.N.

TITLE: Nonlinear two-dimensional singular integral equations

PERIODICAL: Referativnyy zhurnal. Matematika, no.8, 1960, 129,
            abstract no. 9050. Uch. zap. Yelabuzhsk. gos. ped. in-ta,
            1958, 3, 83-104

TEXT: The author proves the existence and uniqueness of the solution
of two-dimensional nonlinear singular integral equations; he considers
two nonlinear boundary value problems of the theory of harmonic
functions. The author considers the equation

$$u(M) = \varphi(\cdot) \left\{ \int_S K(M,\bar{M}) u(\bar{M}) ds + \cdot M.u(M). \int_S k(M,\bar{M}) u(\bar{M}) ds \right\} + F(M), \qquad (1.1)$$

where S is a Lyapunov surface. The kernel $K(M,\bar{M})$ admits the represent-
ation $k(M,\bar{M}) = f(M,\Theta)/r^2$, where Θ is the angle between the plane
through the normal in the point M and through the point M and any
fixed plane through the same normal. The integral is understood in the
sense of the principal value according to Cauchy. $\varphi(\cdot)$ is a continuous

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Nonlinear two-dimensional...

S/044/60/000/008/025/035
C111/C222

non-decreasing function of the parameter λ, $\lambda(0) = 0$. The equation
(1.1) is investigated in the space L_2. The existence and uniqueness of

the solution in L_2 is proved by the application of the principle of

the contracting mapping.
In § 3 the author considers two nonlinear boundary value problems for
the Laplace equation. The solution of these problems is reduced to
the two-dimensional singular integral equation of the type (1.1).

[Abstracter's note: The above text is a full translation of the original
Soviet abstract.]

Card 2/2

RAKHIMOV, N.L.

"Concerning the Effectiveness of Certain Anti-malarial Drugs of the
Acridine and Quincline Series." Sbornik Nauchnykh Trudov Tashkentskogo
Institute Usovershenstvovaniya Vrachey, Tashkent, Vol 1, 1952, pp 33-39.

RAKHIMOV, N.R.; DEKHKANKHODZHAYEVA, N.A.; YUSUPOVA, E.

Use of natural gastric juice of cattle on patients with secretory insufficiency of the stomach. Trudy Inst. kraev. eksper, med. no.4:93-98'62.   (MIRA 16:6)
     (GASTRIC JUICE)   (DYSPEPSIA)

Secretion of gastric juice in chronic gastritis.

BARINOV, M.G.; GIBGER', G.L., KIRITSA, K.N.

Enterokinase in the duodenal contents in patients with
chronic colitis. Trudy Inst. kraev. eksper. med. no.5:74-80
'63.
(MIRA 17:6)

USSR / Pharmacology, Toxicology. Chemo-Therapeutic Preparations.   V
      Anthelminthic Drugs.

Abs Jour   : Ref Zhur - Biologiya, No 6, 1959, No. 27977

Author   : Rakhimov, N. R.
Inst   : Not given
Title   : Treatment of Ascariasis with Oxygen

Orig Pub   : Med. zh. Uzbekistana, 1958, No 1, 58-60

Abstract   : Treatment of 82 patients with oxygen was conducted; of
             them, 76 were in the 7-30 age group, 6 - over 30 years
             of age. Special preparation was not conducted. The
             oxygen was introduced in small doses of 250-300 ml each
             with intervals of 2-3 min; total amount 1500-800 ml for
             adults; for children 100 ml. each, per every year of life.
             In 67 patients (81.7%), a positive effect was obtained:
             Ascaris were excreted for the duration of 1-6 days through
             the mouth and with stool masses, the Ascaris eggs dis-

Card 1/1

RAKHIMOV, N.R.

Efficacy of a cobalt-9 preparation in the treatment of gastric and duodenal ulcers. Trudy Inst. kraev. eksper. med. no.3:107-111 '61.
(MIRA 15:5)

(PEPTIC ULCER)   (COBALT--THERAPEUTIC USE)

RAKHIMOV, N.R., dotsent

Effectiveness of treating gastric and duodenal ulcer with cobalt
preparation No.9. Preliminary report. Med. zhur. Uzb. no.4:18-
20 Ap '61.   (MIRA 14:5)

1. Iz kafedry laboratornoy diagnostiki i parazitarnykh bolezney
Tashkentskogo gosudarstvennogo instituta usovershenstvovaniya
vrachey.
        (PEPTIC ULCER)   (COBALT--THERAPEUTIC USE)

RAKHIMOV, H.R.

Distribution of acrichine in the body. Izv.AN Uz.SSR.Ser.med.
no.3:41-43 '59.
(MIRA 12:8)

1. Tashkentskiy institut usovershenstvovaniya vrachey.
(QUINACRINE)

ARIFOV, U.A.; RAKHIMOV, R.

Existence of potential extraction of electrons during bombardment
of metals by ions of inert gases. Izv.AN Uz.SSR.Ser.fiz.-nat.
nauk no.5:5-13 '58.   (MIRA 11:12)

1. Fiziko-tekhnicheskiy institut AN UzSSR.
                 (Electron emission)

Rakhimov, R.

USSR.

1003. Distribution of anabasine between benzene and saturated aqueous solutions of sodium sulphate. Kh. R. Rakhimov, S. F. Kulikov and S. N. Nabik-Nodzhaev (Dokl. Akad. Nauk Uzb. SSR, 1953, [?], 19-21; Referativnyi Zh., Khim., 1954, Abstr. No. 33,022).—The solubility of anabasine in 1 M Na_2SO_4 soln. at 25° C is 1·2 per cent. by wt. and in 1·5 M Na_2SO_4 soln. it is 0·75 per cent. When 1·5 M Na_2SO_4 is added to alkaline soln. of anabasine sulphate, 97 per cent. of the anabasine separates; a single extraction with benzene separates 99·05 per cent. of the anabasine.   E. Hayes

②

RAKHIMOV, R.: Master Phys-Math Sci (diss) -- "Secondary electron emission of metals under the effect of bombardment with various ions in the energy range up to 10 KEV". Tashkent, 1958. 9 pp (Acad Sci Uzbek SSR, Phys-Tech Inst), 175 copies (KL, No 8, 1959, 134)

ARIFOV, U.A.; RAKHIMOV, R.

Comparative investigation of electron emission from metals bombarded
by ions of inert gases and alkali elements with energies up to 10 kev.
Izv. AN Uz. SSR. Ser.fiz.-mat.nauk no.6:49-55 '58.

1. Fiziko-tekhnicheskiy institut AN UzSSR.   (MIRA 12:2)
        (Electron emission)   (Ion beams)

ARIFOV, U.A.,akademik; RAKHIMOV, R.

Effect of temperature and work function of metals on potential
electron emission. Dokl.AN Uz.SSR no.12:15-18 '58.

(MIRA 12:1)

1. AN UzSSR (for Arifov). 2. Institut yadernoy fiziki AN UzSSR.
(Electron emission)

RAKHIMOV, R.M.; MAMADZHANOV, U.D.

Simplified calculation of the profile of a slant hole. Izv. AN
Uz. SSR. Ser. tekh. nauk 9 no. 6:44-48 '65   (MIRA 19:1)

1. Institut geologii i razvedki neftyanykh i gazovykh mestorozh-
deniy Gosudarstvennogo geologicheskogo komiteta SSSR. Submitted
December 15, 1964.

AUTHORS: Arifov, U. A.; Rakhimov, R. R.

TITLE: Investigation of the Dependence of Ion-induced Electron
              Emission on Some Target Parameters and Incident Ions

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya,
              1960, Vol. 24, No. 6, pp. 657-663

TEXT: This is the reproduction of a lecture delivered at the 9th All-
Union Conference on Cathode Electronics from October 21 to 28, 1959 in
Moscow. In the introduction the effects occurring in the bombardment
of metal surfaces with positive ions are dealt with (electron emission
due to ionic impact; field-induced electron emission caused by the
internal energy of ions). Furthermore, recent publications are dealt
with. V. G. Tel'kovskiy (Ref. 5) is mentioned among others. The experi-
ments were made with the vacuum apparatus shown in Fig. 1; the design and
the electrical circuit of this apparatus in which measurements are made by
an oscilloscope are described in detail. The measurement error is given to
be 2-3%. In discussing the experimental results, first the dependence of
the coefficient of potential and kinetic electron emission on temperature,

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Investigation of the Dependence of Ion-induced   S/048/60/024/06/05/017
Electron Emission on Some Target Parameters and   B019/B067
Incident Ions

and the work function from the metal are dealt with. A Mo target was used
for these experiments which was bombarded with Ar- and K-ions with kinetic
energies of 200 ev and 5,000 ev. The dependence of the two afore-mentioned
coefficients graphically shown in Fig. 2 indicates that for pure Mo they
are not temperature-dependent (Curves 1 and 2 in Fig. 2). If the Mo
surface is contaminated (adsorbed molecules) a temperature dependence
(Curve 3 in Fig. 2) can be observed. Furthermore, the study of the de-
pendence of the two coefficients on the work function of electrons
is dealt with, and Pt, Ni, W, Mo, Ta, Zr, and Mg targets are investigated.
First the influence exercised by a thermal treatment of the metals is
reported on, which in the case of some metals (Ta, Mo, W) is considerably
high (Fig. 3). Fig. 4 graphically shows the dependence of the emission
of secondary electrons on the work function for Ar- and Ne ions. It is
shown that the coefficient of potential electron emission greatly depends
on the work function. In the last chapter, the dependence of the two emis-
sion coefficients on the energy of incident electrons is dealt with. It
is concluded from the results which are graphically represented in Figs. 5

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Incident Ions   B019/B067

to 8 that with sufficiently high energies of primary ions the kinetic
energy of electrons is independent of the work function. In general, it
is summarized that the coefficients of potential and kinetic electron
emission do not depend on the metal temperature, that the coefficient
of potential electron emission is reduced with increasing work function,
that the linear increase in secondary electron emission with the energy
of incident ions in rare gases and alkali metal ions can be explained by
electron emission due to ionic impact caused by the kinetic energy of
incident ions that the potential electron emission does practically not
depend on the kinetic energy of ions up to 10 kev, and that with a
kinetic energy of incident ions of more than 8 kev secondary electron
emission for Mo, Ta, and W is approximately equal. There are 8 figures
and 14 references: 9 Soviet, 2 British, 2 German, and 1 American.

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Investigation of the Dependence of Ion-induced   S/048/60/024/06/05/017
Electron Emission on Some Target Parameters and   B019/B067
Incident Ions

ASSOCIATION: Institut yadernoy fiziki Akademii nauk UzSSR
                (Institute of Nuclear Physics of the Academy of Sciences,
                Uzbekskaya SSR)

Card 4/4

ARIPOVA, D.F.; RAKHIMOV, R.R.

Study of the potential electron emission with simultaneous
determination of the work function of the metal. Izv. AN Uz.
SSR. Ser. fiz.-mat. nauk 6 no.6:71-74 '62.   (MIRA 16:2)

1. Institut yadernoy fiziki AN UzSSR.
            (Thermionic emission)
            (Secondary electron emission)

94/2129

S/020/62/143/002/003/022
B104/B102

AUTHORS: Arifov, U. A., Member of the AS Uzbekskaya SSR, Rakhimov,
            R. R., and Dzhurakulov, Kh.

TITLE: Secondary emission on bombardment of molybdenum with neutral
            argon atoms and with argon ions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 2, 1962, 309-311

TEXT: An experimental arrangement including an ion source, a device for
ion beam focusing, a charge-exchange chamber, and a measuring unit was
used to investigate the secondary electron emission of Mo, produced by Ar
atoms and ions of 0.2-3.0 kev. Neutral atoms of this energy were obtained
by resonance charge exchange of Ar ions with natural Ar gas in the chamber.
The intensity of the beam of neutral atoms was estimated from the measured
value of ion-beam intensity before and after resonance charge exchange.
The Ar ions remaining in the beam after resonance charge exchange were
deflected by an electric field so that only neutral atoms struck the Mo
target. Particular attention was paid to the purity of the target surface.
Oscillograms of the volt-ampere characteristic of secondary emission show

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Secondary emission on bombardment ...

S/020/62/143/002/003/022
B104/B102

that a field-induced emission is present at low Ar ion energies but is absent at the same energies of neutral atoms (Fig. 2). There are 2 figures and 4 references: 3 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: H. D. Hagstrum, Phys. Rev., 104, 672 (1956).

ASSOCIATION: Institut yadernoy fiziki Akademii nauk UzSSR (Institute of Nuclear Physics of the Academy of Sciences Uzbekskaya SSR)

SUBMITTED: June 17, 1961

Fig. 2. Coefficient γ of secondary electron emission.
Legend: energy E_0 of ions and atoms (kev).
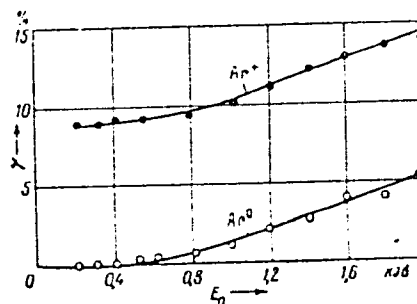
Card 2/2

ARIFOV, U.A.; RAKHIMOV, R.R.; ABDULLAYEVA, M.; GAIPOV, S.

Electron emission from metals induced by light ions. Izv.AN
SSSR. Ser.fiz. 26 no.11:1403-1409 N '62.   (MIRA 15:12)
        (Electrons—Emission)   (Ion beams)

ARIFOV, U.A.; RAKHIMOV, R.R.; DZHURAKULOV, Kh.

Secondary electron emission during bombardment of molybdenum by
He, Ne, and Ar atoms and ions. Radiotekh.i elektron. 8 no.2:
299-302 F '63.   (MIRA 16:2)
                    (Secondary electron emission)

S/109/63/008/002/013/028
D413/D308

AUTHORS: Tashkhanova, Dzh.A., Rakhimov, R.R. and Arifov, U.A.

TITLE: Investigation of the secondary electron emission from
                  bombardment of Na films with Ne$^+$ and Ar$^+$ ions

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 2, 1963,
                  294-298

TEXT: In an earlier paper (Izv. Akad. Nauk SSSR, Ser, fiz.
v. 24, no. 6, 1960, 664) two of the authors showed the presence of
electrons and negative ions in the secondary emission from Na films
bombarded by Ar$^+$ ions with 720 ev energy. They now study by the mag-
netic separation method the emission from a film of Na on Mo or Ta
when bombarded by Ne$^+$ and Ar$^+$ ions in the energy range 100-1000 ev.
They describe their vacuum apparatus, which is basically the same as
that used before. They give oscillograms of the voltage-current cha-
racteristics obtained for secondary electrons and secondary negative
ions during deposition of Na, and derive curves of the secondary emis-
sion coefficients as functions of film thickness and primary ion ener-

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Investigation of the secondary ...

gies. The negative ion emission is shown to become negligible for
thick and relatively pure Na films, while the potential nature of
the electron emission is shown by its almost complete independence
of the kinetic energy of the primary ions for all the targets and
ions. The secondary electron emission coefficient is shown to depend
appreciably on the work function of the surface. The results agree
well with others published. There are 6 figures.

SUBMITTED: March 19, 1962

Card 2/2

ACCESSION NR: AP4017604   S/0109/64/009/002/0333/0338

AUTHOR: Rakhimov, R. R.; Dzhurakulov, Kh.

TITLE: Energy distribution of electrons dislodged from molybdenum by atoms and ions of neon

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 333-338

TOPIC TAGS: electrons energy distribution, Mo electrons dislodging, electron dislodging by Ne atoms, electron dislodging by Ne ions

ABSTRACT: An experimental investigation of the energy distribution of electrons dislodged from carefully degassed Mo by Ne atoms and ions in an energy region of 0.4-5.0 kev is reported. It is found that: (1) The spectrum of electrons knocked-on by the potential energy of ions does not essentially change with the ion velocity; (2) The spectra of the electrons emitted by the kinetic energy of ions and atoms are almost identical; (3) With higher E_e, the maximum on the curve of

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distribution of kinetic-emission electrons shifts slightly toward higher energies, and the importance of fast electrons in the total emission grows faster than that of slow electrons. "The authors are deeply grateful to U. A. Arifov for his constant attention to the work, and to A. Kh. Ayukhanov and E. S. Parilis for their valuable comments during the discussion." Orig. art. has: 4 figures.

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Card 2/2

[illegible], [illegible], akademik; [illegible], [illegible],: BAFELOV, R.M.

[illegible] of the [illegible] change in the kinetic emission of electrons.
[illegible] no. [illegible]:15-17 '64   ([illegible] 18:1)

Emission of electrons and negative ions from [illegible] films
during the bombardment with sodium ions and atoms. Ibid.:18-21

[illegible]. [illegible] Institut AN UzSSR, g. [illegible] UzSSR (for
[illegible]). Submitted August 19, 1964.

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AUTHORS: Arifov, U. A., Rakhimov, R. R., Abdullayeva, M., and
                Gaipov, S.

TITLE: The electron emission from metals induced by light ions

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
                v. 26, no. 11, 1962, 1403-1409

TEXT: The electron emission from pure molybdenum during bombardment by
ions of the hydrogen isotopes and by He^+ ions is studied in the range of
0.1-0.45 kev to obtain information regarding the effect of the ion mass on
the kinetic electron emission. The experimental apparatus comprised the
ion source mass separator, principal accelerating tube, receiver part and
source of the auxiliary beam of Ar^+ ions. The pressure of the residual
gases was $2 \cdot 10^{-7}$ mm Hg. The coefficient γ was measured between 1300 and
1400°K. The best target material was found to be molybdenum. In the
energy range of 0.1-4.0 kev the target was bombarded only by H_2^+ and D_2^+ ions.
$\gamma \sim 6\%$ for H_2^+ and D_2^+ at energies up to 300 ev; if the energy, continues to

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The electron emission from ...   S/048/62/026/011/011/021
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increase, γ increases monotonically for H_2^+ ions and remains almost constant up to 1 kev for D_2^+ ions. Above this energy, γ increases almost linearly. $\gamma = f(E)$ is steeper for H_2^+ than for D_2^+, while $\gamma = f(v_0)$ is almost equal. An isotope effect (ions of differing mass being differently retarded during penetration into the metal) is observed only at relatively low ion velocities. The ions with the masses 1, 2, 3, 4 which appear if deuterium exists in the ion source are protons (developing through dissociation of DH molecules), deuterons with a slight admixture of H_2^+ ions, DH$^+$ ions (not H_3^+ ions), and D_2^+ ions. The dependence of γ on the initial ion energy is shown in Fig. 5. Molecular ions knock out twice as many electrons as atomic ions having the same velocity. The experimental values of γ for all molecular and atomic ions investigated fit onto one almost linear curve. The mass independence of γ is due to the high ion energies. The differences in the absolute values of γ and increase of the function $\gamma = f(v_0)$ for He$^+$ and H_1^+, D_1^+ is obviously due to the effect of the surplus electron on the H$^+$ shell. There are 6 figures.

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